Remarks

Claims 18-22 and 24-36 are pending in this application. Claims 18-22 and 24-36 have been rejected. Claim 24 has been amended and new claims 37-39 have been added, which amendments and claims do not add new matter. In view of the following remarks, reconsideration of claims 18-22 and 24-36, and consideration of new claims 37-39, is respectfully requested.

Claim Rejections - 35 U.S.C. § 102

Claims 24 and 27-36 are rejected under 35 U.S.C. § 102(e) as being anticipated by Landers, US Patent 6,844,154 B2 (hereinafter referred to as "Landers"). The Examiner has maintained rejection of these claims, noting that Applicant's prior arguments were not persuasive. The Examiner has specifically stated that the instant claims are not drawn to a method which excludes amplification of all polymorphic sites.

Applicant respectfully disagrees with the Examiner, and maintains that the method of Landers is quite different from the method of the instant invention. Landers teaches in all examples that the entire nucleic acid having the SNP sites of interest is first subjected to PCR amplification, then the amplified nucleic acid is subjected to allele-specific hybridization (see Landers at column 14, lines 42-54). Nowhere does Landers teach or suggest that the described methods could be practiced without an initial amplification of the original nucleic acid sample. (see Landers column 20, lines 29-37; column 27-28, lines 64-15; and column 30, lines 50-63) Claim 24, as amended, recites a haplotyping method wherein an original nucleic acid sample is subjected to hybridization with a specific probe. As described in the specification (see paragraphs [0034]-[0038]), an original nucleic acid sample has not been subjected to amplification. Thus, not only does the instant invention not require amplification of all of the polymorphic loci on the nucleic acid that is being haplotyped, it is also a key feature of the instant invention that enrichment occurs prior to any amplification. Lacking any teaching or suggestion that a non-amplified and original nucleic acid sample can be used for purposes of haplotyping, Landers simply does not anticipate Applicant's invention as recited. Applicant respectfully submits that claims 24 and 27-36 are allowable.

Claim Rejections - 35 U.S.C. § 103

Claims 18-22 and 25-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Landers in view of Sorenson, US Patent 6,020,124.

The Examiner has maintained rejection of the instant claims, stating that Landers teaches enrichment of a sample followed by analysis of one or more SNPs, and that Sorenson teaches a step of post-enrichment amplification. Applicant respectfully submits that the Examiner has misconstrued the cited references, since both references teach amplification of the original nucleic acid sample prior to any hybridization for enrichment.

The enrichment process of the instant invention is not equivalent to the amplification processes described in Landers or Sorenson because amplification means generating more of the target molecules, whereas in the instant invention only enrichment, which is selectively increasing the ratio of enriched molecules to non-enriched molecules, is needed for accurate haplotyping of SNP sites that are any distance apart on the same nucleic acid molecule. And importantly, Applicant's claims 18 and 24 recite that the nucleic acid sample is original -- that is, it is not amplified. Neither Landers nor Sorensen makes any mention or suggestion of the desirability of first enriching the original nucleic acid sample based on the specific sequence of a particular allele of one selected SNP site before any amplification, as recited in claim 18. Thus, even if combined, the cited references do not provide a method of haplotyping wherein enrichment of a nucleic acid sample for one allele of a target SNP is achieved using an original, non-amplified sample of nucleic acid. And neither Landers not Sorensen makes any mention or suggestion of the desirability of using primer sets that can flank only one SNP, as recited in claims 25-26 and new claims 37-39. Applicant submits that neither reference provides any motivation to modify any teachings regarding pre-enrichment amplification of all SNPs within a target region. More particularly, upon reading either Landers or Sorensen, one of ordinary skill would find no motivation to eliminate the amplification of the original sample prior to any hybridization or enrichment. Accordingly, for these reasons, and in view of other differences between the cited references and the instant claims, Applicant submits that the new claims are not rendered obvious under 35 U.S.C. § 103(a) in light of Landers.

Applicant respectfully submits that claims 18-22 and 24-36, and new claims 37-39, are in condition for allowance. Prompt notice of such allowance is respectfully requested.

This paper is filed with a request for a three month extension of time and required fee. It is believed that there is no fee or no additional fee associated with the filing and consideration of this document, however, should the Commissioner decide that any fee or fee deficiency is due, the Commissioner is hereby authorized to charge any and all fees incurred as a result of entering or considering this document to deposit account number 03-0172.

Respectfully submitted,

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